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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/669,034	09/25/2000	Ganesh Subramaniyam	042390.P9043	3498

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EXAMINER	
PHAN, RAYMOND NGAN	
ART UNIT	PAPER NUMBER
2111	

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/669,034	SUBRAMANIYAM ET AL.	
	Examiner	Art Unit	
	Raymond Phan	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

5.00

Part III DETAILED ACTION

Notice to Applicant(s)

1. This action is responsive to the following communications: RCE filed on April 12, 2005

2. This application has been examined. Claims 1-3, 5-20 are pending.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

4. Claims 7 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 7, using the phrase, "...the CPU artificial activity generator...", lacks proper anteceded basis and causes the claim to be vague and indefinite.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-3, 5-20, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Thomas et al. (US No. 5,752,011) in view of Shiell et al. (US NO. 6,138,232).

In regard to claims 1, 8, Thomas et al. disclose a method and system controlling a CPU's clock based on the processor's temperature and activity,

wherein the CPU includes programmable logic array 8 (see col. 6, lines 1-34) to operate as an interrupt handler to control CPU upon receiving an interrupt 18 (see figure 3, col. 4, line 64 through col. 5, line 38). But Thomas et al. do not specifically disclose the first quantity of instruction per cycle in first mode and second quantity of instructions per cycle in second mode. However Shiell et al. disclose the first quantity of instruction per cycle in first mode (i.e. partial mode) and second quantity of instructions per cycle in second mode (i.e. full mode) (see col. 9, lines 25-40). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Shiell et al. within the system of Thomas et al. because it would reduce the power consumption in the computer system.

In regard to claims 2, 15, Thomas et al. disclose wherein the power management logic comprising a thermal sensor 4 (see figure 5); and an interrupt generating hardware 16 coupled to the digital filter, wherein the interrupt generating hardware generates a first interrupt whenever the temperature of the CPU exceeds the predetermined threshold and generates a second interrupt whenever the temperature of the CPU is below the predetermined threshold (see figure 3, col. 7, line 51 through col. 8, line 5). The teaching of digital filter is explicitly known to the teaching of Thomas et al. (see col. 5, line 65 through col. 6, line 17).

In regard to claims 3, Thomas et al. disclose an analog to digital converter coupled between the thermal sensor and the digital filter (see figure 9).

In regard to claim 5, 9, 17, Shiell et al. disclose wherein the power management logic further comprises an instruction execution unit coupled to the interrupt handler (see col. 6, lines 4-50); an artificial activity generator coupled to

the interrupt handler (see col. 4, lines 7-58). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Shiell et al. within the system of Thomas et al. because it would reduce the power consumption in the computer system.

In regard to claim 6, 11-14, 18, Thomas et al. disclose wherein the CPU to operate in a full dispersal mode whenever the die temperature is below the predetermined threshold temperature and operates in a single dispersal mode whenever the temperature of the CPU is above the predetermined threshold temperature (see col. 14, lines 47-67). But Thomas et al. do not specifically disclose the instruction execution unit. However Shiell et al. disclose the instruction execution unit executes the numbers of instruction based on the predetermined frequency from the interrupt (see col. 4, lines 7-58). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Shiell et al. within the system of Thomas et al. because it would reduce the power consumption in the computer system.

In regard to claims 7, 10, 19, Thomas et al. disclose wherein the artificial activity generator causes the CPU artificial activity generator to suspend artificial activity within the CPU whenever the die temperature is above the predetermined threshold temperature (see col. 6, lines 35-67).

In regard to claims 16, 20, Thomas et al. disclose a method and system controlling a CPU's clock based on the processor's temperature and activity, wherein the CPU includes programmable logic array 8 (see col. 6, lines 1-34) to operate as an interrupt handler to control CPU upon receiving an interrupt 18 (see figure 3, col. 4, line 64 through col. 5, line 38); the thermal sensor 4 (see figure 5).

But Thomas et al. do not specifically disclose the instruction execution unit indicating execution of first quantity of instruction per cycle in first mode and second quantity of instructions per cycle in second mode. However Shiell et al. disclose instruction execution unit indicating the execution of the first quantity of instruction per cycle in first mode (i.e. partial mode) and second quantity of instructions per cycle in second mode (i.e. full mode) (see col. 9, lines 25-40). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Shiell et al. within the system of Thomas et al. because it would reduce the power consumption in the computer system.

Response to Amendment

7. Applicant's amendment and arguments, filed on April 12, 2005, with respect to the rejections of claims 1-3, 5-20 under 35USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Thomas et al..

Conclusion

8. Claims 1-3, 5-20 are rejected.

9. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure.

Schumann et al. (US No. 6,006,168) disclose a thermal management for central processing unit.

Hobson (US No. 6,112,164) discloses a computer system thermal management.

Watts (US No. 5,996,084) discloses a method and apparatus for real-time CPU thermal management and power conservation by adjusting CPU clock frequency in accordance with CPU activity.

Ikedea (US No. 5,664,201) disclose a drive control system for microprocessor according to operational state and ambient temperature condition thereof.

Klein (US No. 6,219,795) discloses a thermal management apparatus based on a power supply output.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Raymond Phan, whose telephone number is (571) 272-3630. The examiner can normally be reached on Monday-Friday from 6:30AM- 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Primary, Paul Myers can be reached on (571) 272-3639 or via e-mail addressed to paul.myers@uspto.gov. The fax phone number for this Group is (703) 872-9306.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [**raymond.phan@uspto.gov**].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see hop://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 central telephone number is (571) 272-2100.

Raymond Phan
June 1, 2005